

# THE MEDICAL AND SURGICAL REPORTER.

No. 1022.]

PHILADELPHIA, SEPT. 30, 1876.

[VOL. XXXV.—No. 14.]

## ORIGINAL DEPARTMENT.

### COMMUNICATIONS.

#### THE GENERAL PATHOLOGY OF ASTHMA.

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I well remember the satisfaction felt, when, several years ago, the opportunity of reading the lectures upon dyspnœa, of the late Dr. Hyde Salter, was presented, in the columns of the London *Lancet*. There was in them so much of an original type, and so much of an apparent scientific mould, that the eminent author at once took a strong hold upon my esteem.

His demonstrations left such a clear impression of the different forms of dyspnœa upon the mind, that it seemed to me a new era in the diagnosis of chest-diseases had dawned upon us. And it was with this feeling of interest in Dr. Salter that I subsequently read his extensive monograph upon asthma. Some of my earliest recollections were of this disease, as it presented itself, in its worst form, in the person of an uncle who endured its tortures for some forty years. Consequently I was fully prepared to consider carefully anything this popular author had to offer as to its pathology or treatment.

And so I read, pondered, and doubted; and this doubt related to his theory. It was not possible for me to discover, in the assumed spasm of the circular fibres of the bronchial tubes, any adequate cause for the leading phenomena of an asthmatic paroxysm. The

lapse of time has only added strength to the impression on my mind that, in this particular, Dr. Salter was in error. Against his conclusion you will allow me to give the facts that have influenced my mind. I shall consider them under four heads.

#### 1st. Lung necessity.

#### 2d. Anatomical and physiological analogy.

3d. By contrast—conditions seen in real spasm of lung tissue, bronchi, trachea and larynx, against the conditions seen in the supposed asthma spasm of the smaller bronchi.

#### 4th. Therapeutics of asthma.

I. I hope to be able to prove that lung necessity has been amply provided for, and upon the same plan that is exhibited in every other portion of the bodily structure.

Let us look at asthma as it appears in one of its paroxysms. We find the patient suffering great distress; his facial expression indicating the extreme of agony, with dyspnœa that is peculiar and alarming, the respiratory forces being largely unbalanced; with the chest walls distended to their utmost capacity, with inability to talk or cough, and a weak, compressible and irregular pulse. This is a fair outline of the leading abnormal conditions that exist. The chest dilatation, with the restriction placed upon the power to talk and cough, are the distinctive features of the group; and they are clearly and decidedly pathognomonic. The ribbed walls of the thorax are expanded to their utmost capacity, the muscles of extreme and forced inspiration are brought into excessive action, and all the powers of the system that can be brought to bear are concentrated in efforts at respiration. Now this array of pecu-

liar chest symptoms attendant upon one of these paroxysms is unknown to any other disease; and if we can account for them upon a rational basis, we shall be in a fair way to arrive at their true pathology.

Dr. Salter, in an effort to account for the chest expansion in connection with his spasm theory, claims that it exists from the largely increased action of the inspiratory muscles, particularly those of extreme inspiration, from the fact that air is admitted to the bronchi, but excluded from the vesicles by the spasmodic contraction of the circular fibres of the smaller tubes. He enunciates as a law, that when any fault in the respiratory system excludes a part of its atmospheric supply, and increased lung action cannot remove it, but slight effort is made in that direction—the effort being measured by the amount of relief that can be afforded. And this, from the clear fact that to do more would only increase the difficulty by adding an increased demand for oxygen in proportion to the muscular effort at relief.

The law is exemplified in cases where the air is partially excluded in the region of the larynx, when, as a rule, respiration is easy but prolonged, because lung power is not commensurate with the means required for the removal of the difficulty. On the other hand, when air is admitted freely into the immediate vicinity of the lung structure, but its access to the air vesicles more or less impeded, as in bronchitis, particularly capillary bronchitis, then increased lung action compensates largely for the obstruction, and the respiratory acts are at times increased to threefold their normal frequency.

If this law does exist, and is applicable in such cases as are above cited, and worthy of being carefully considered in the formation of a diagnosis in cases generally where dyspnoea enters as an element to be considered, I none the less hold that it is not applicable in asthma; that it will not account for the chest dilatation, as claimed by Dr. Salter, and that he has overlooked certain facts which appear to preclude the possibility that this condition can rest upon such a basis. Against this claim, that the great expansion of the chest is due to the tugging of the inspiratory muscles, in order to get air through the spasmodic tubes, I offer the following facts:—

1st. The trouble is not in getting air into the lungs, but in getting air out of the lungs.

This is clearly the case, from the fact that

during the paroxysm, when the air, in expiration, is expelled from the lungs, *the act is much prolonged*, and evidently from a loss of power on the part of the forces concerned in the action, as there is almost absolute inability to talk or to cough.

2d. That while the inspiratory muscles are all acting forcibly, there is no deficiency, but an excess of air present; its increase in amount over the normal quantity in health being nearly in direct ratio to the expansion of the chest walls and the descent of the diaphragm; and the feeling of impending suffocation is not from want of oxygen, but from an excess of carbonic acid, which the crippled expiratory power is unable to expel.

Were any one to doubt the presence of this excess of air, the greatly-increased resonance elicited upon percussion of the chest-walls should remove the doubt.

The apparently-increased action, then, of the inspiratory muscles is not to secure more air, as claimed by Dr. Salter; for the urgent need of the system is to escape from the abundance already distending the lung-tissue and holding in itself, in excess, an irritating and poisonous element in the form of carbonic acid gas.

3d. While it is now certain that there is an excess of air present, it is equally certain that the amount of oxygen is much greater than the carrying capacity of the lungs can accommodate during an asthmatic paroxysm.

In a state of health there is an equipoise between the circulatory and respiratory systems. In disease, this is often changed; at times by an obstruction to the former, and at other times to the latter supply. In asthma it occurs in connection with both; the circulatory system being deranged by a loss of balance between its two divisions—a deficiency of blood in the arterial system, this system being oppressed, upon one hand, by the inaction of the venous blood, and upon the other, by the crippled condition of the left side of the heart, from the lack of impulse imparted by the rhythmical elevation and depression of the chest-walls; and the venous system unbalanced, by having an excess of blood, and this blood made noxious by holding an excess of carbonic acid; and these the direct result of the pulmonary stasis that is incident to the extreme lung expansion with which a proper aeration and movement of the blood is impossible.

This complicated disturbance is seen in no

other disease than asthma; and the abnormal conditions presented in the air supply movement, and the blood circulation, with its altered condition in the arterial and venous circuits, stand to each other as cause and effect. In the lung structure the air, when there is normal movement, not only supports animal life by oxygenating and decarbonizing the blood, but its presence affords an amount of pressure that is important not only to the lungs but the other internal organs of the body. In asthma we have an increase of this pressure, but from the inaction of the thoracic walls the capillaries of the pulmonary artery, ranging between the air vesicles, retain their fullness of carbonized blood. The result is the back-action of the blood upon the right side of the heart, and the overloading of the whole venous system. This blood, thus retained, is, to a certain extent, practically withdrawn from the general circulation; and the arterial system gives evidence of the loss by its weak, irregular, and compressible radial pulse. Now, as the arterial blood supplies the oxygen for the use of the tissues, and as this blood is circulating in much less quantity than in health, it follows that the amount of oxygen called for is equally less.

The want of this element that exists in the whole body we are not to take into account; but simply that portion that is represented by the carrying capacity of the arterial circulation in an asthmatic paroxysm, because the law of Dr. Salter, upon which he founds the claim that the chest dilatation is due to increased inspiratory action, is, "that the action shall be proportioned to the relief that can be afforded." Now, having found that the restricted lung action can give to the arteries only a part of the aerified blood to which in health they are entitled, if we measure the inspiratory action by the rule of Dr. Salter's own application, we shall find that, instead of an increase, there will be a decided decrease of effort on the part of the inspiratory muscles.

If the spasm theory is true, we should, when measured by the same law, have the same chest expansion from forced inspiratory action in capillary bronchitis, the occlusion being at the same point of lung entrance. And in pneumonia, where the air has access to the very mouths of the vesicles in the implicated lung structure, we would expect to find the expansion greater than in asthma. Yet no such condition exists.

By these facts I conclude that either the law above referred to or the spasm theory is incorrect; and as experiments have proved that the power in forced expiration is greater than that of forced inspiration, I conclude that spasm of the circular fibres of the bronchi would not serve to expand the chest walls to their greatest capacity, and hold them there for days, but, on the contrary, would tend to exhaust the lungs of their surfeit of air, and depress the chest walls down to the level of the residual air. So I believe the error to exist in the spasm theory.

In this I am confirmed upon the further study of lung necessity. One of the best established facts in physiology is the necessity of the continual elimination of carbonic acid in expiration. To check this process is hazardous, and to suppress it through a space of three or four minutes will generally inflict a death penalty.

That this elimination receives a serious check in asthma becomes a certainty when we consider the non-depression of the thoracic walls, the powerless condition of the voice, and the inability to cough, expectorate, or sneeze, powers that are wholly associated with the expiratory process.

Unable to avoid this view, I am forced to the conviction that the difficulty is one that primarily and completely destroys the ordinary expiratory power; the inhibitory factor being a paralysis of the bronchial muscles, the circular fibres of the smaller bronchi, and the lobules of the lungs; and that the chest expansion is the result of the comparatively permanent contraction of the unopposed muscles of forced inspiration.

The theory of paralysis has before been advocated, but only in reference to the bronchial tubes. This is the position taken by Dr. Walshe, in his work on the "Diseases of the Heart and Lungs." But I claim that the paralysis not only involves these bronchial muscles, but must necessarily involve, more or less, the whole respiratory apparatus, from the larynx to the lung lobules. Dr. Salter, in opposing the theory of paralysis of the bronchial muscles, dismissed it summarily, and adopted the views of Dr. Budd, as urged in his paper on emphysema and asthma.

These views hold that it is impossible for these muscles to constitute an element in expiration, as their fibres are those of the organic

system, while all the forces of inspiration are of the animal, or voluntary system. Hence, they could not oppose each other and have harmony prevail in their action. But such a view does not seem tenable in the presence of certain facts. The nerve supply to these bronchial muscles is given off from the pneumogastric, which is a mixed nerve, a large portion of its motor force being under the control of the will.

As already stated, Dr. Salter held that the bronchial muscles took no part in expiration. But Drs. Radcliffe, Hall, Haller, Reisseissen, Elliotson and others, hold to the contrary; and a careful survey of the anatomy of the trachea and bronchi indicates that the latter view is correct.

The transverse fibres, extending across the posterior part of the trachea from the extremity of one horn of its cartilaginous ring to the extremity of its fellow on the opposite side, clearly contract the ring when acting, and thereby lessen the capacity of the tube transversely.

The longitudinal fibres, not antagonistic, but coincident in their action with the transverse fibres, situated upon the posterior portion of the tube at a right angle with the latter, tend, in their action, to lessen the capacity of the tube longitudinally. Hence, in the conjoint action of these muscular fibres we have the air, or mucous, or extraneous matter, as the case may be, forced through the larynx just as the transverse and longitudinal fibres of the bladder, acting together, force the contents of that viscus out through its sphincter. The same adaptation of muscular fibres, running at right angles to each other, is seen in the uterus, in its body and fundus; and they act together in the expulsive efforts of that organ. This reasoning, in view of lung function as it exists in expiration, clears my mind of doubt regarding the bronchial muscles.

The question now arises—How is the air forced out of the lung tissue into the bronchi and trachea? If we admit that there is muscular contractility in expiration from the larynx to the smaller bronchi, does it not follow of necessity that this contractility extends into the lung tissue, involving the air vesicles of the lobules? The absolute necessity of the lungs seems to demand this, even more than the bronchi and trachea. Without such power we are unable to see how they can unload the system of its animal debris in the exercise of

their excretory function. Then, in addition to this, is the power necessary to meet the requirements of the voice and of expectoration? Whence do they come? The general reply to this will doubtless be that the air is pressed out of the vesicles by the recoil of the elastic tissue. The theory has long held a place as one of the fixtures of medical acquirement, that the chief factor in expiration is the elastic recoil of the lung tissue. But this elasticity simply implies passive action; and can the uncertainty that usually characterizes such passive action meet the urgent needs of functions of such vital importance? It appears impossible.

As Dr. C. J. B. Williams, Donders, and others, have proved, by careful experiments, that the lung tissue is contractile, we feel well justified in repudiating the old theory, and in recognizing in its place an action largely muscular, and presided over by motor and sensory fibres from the pneumogastric nerve; for with such a distribution of motor force to the air vesicles of every lobule in the lungs we can understand the efficiency of independent lobular action, which must often occur, particularly where mucus or any foreign substance partially occludes the minute tube that leads to the lobule.

Thus, I claim that lung and systemic necessity absolutely requires that the respiratory apparatus be endowed with motor power throughout its extent, from the roots of the tree to the leaves of its branches; that it is so endowed, and that the paralysis of this power furnishes the morbid phenomena of asthma.

II. This fact we will now more fully demonstrate by anatomical and physiological analogy.

In connection with matter and energy in the physical world, there is a law of compensation of which we should never lose sight. All the evolutions of matter are governed by it. Man has successfully applied it in the construction of the pendulum, the power of which over the machinery of the clock is, to some extent, analogous to the rhythmical lung movement over the general organism of the body.

All admit that on the side of inspiration are powerful voluntary muscles, chief of which is the diaphragm; while expiration, which has more varied and important work to perform, has, according to the prevailing theory, no other force equal to that which exists in the recoil of its elastic tissue.



The inspiratory muscles are extensors; they lift and extend the chest walls. Are there no antagonizing muscles to flex these walls? I hold that there are, that this opposing flexor force is in the lungs themselves, which are practically hollow muscles, serving a double purpose in the economy of the respiratory system, as does the atmospheric air, the one being subservient to lung elimination in its muscular contraction in expiration, while the other furnishes means for blood oxygenation and the use of the voice.

This view becomes clear when we consider the experiments by which lung contractility has been proved, the inability of the elastic tissue to meet the requirements, and the motor character of the nerve supply to the apparatus involved. And then, if we examine the elastic tissue in the trachea and bronchi, we shall see that it is simply adaptive, that its passive force in the recoil is brought into action in inspiration, not in expiration; and if we take note of its position in the lungs between the lobes, the lobules, and upon the surface of the lungs, it is evident its action must be the same. We have the same arrangement in the fibrous tissue of the iris, the delicate fibres being largely packed in bundles, as in the elastic tissue of the trachea, where they run parallel with the longitudinal muscular fibres; yet their action is simply adaptive; the force that contracts and dilates the pupil being distinctly muscular. So it is in the arteries, the elastic tissue giving strength, and furnishing support, while it is wholly subservient in action to the muscular fibres. But perhaps the best evidence that the function of this tissue is one of support and adaptation, that other portions of the anatomy may more effectually perform their work, is seen in the transparent cornea, where, by a peculiar arrangement of the elastic plates, there is no contraction through a whole lifetime, unless the plates are torn from their attachment, when the fibres contract and the plates roll up.

Let us now consider the nerve supply to the lungs, for by this we may determine with much precision the process involved in their functional action. This supply is from the pneumogastric, and by an appeal to this important nerve we have disclosed to us five very important facts—

1. A branch of this nerve, the superior laryngeal, confers motor power on one of the muscles of the larynx.

2. Another branch, the inferior laryngeal,

confers the same motor power on the muscles that take part in laryngeal action.

3. The constrictors of the pharynx and oesophagus, by which deglutition is effected, receive their motor power from this nerve.

4. The peculiar movement of the stomach, by which digestion is accelerated, is produced by motor power furnished to the muscular coat of that organ by this nerve.

5. A large portion of the motor or contractile power of the heart is supplied by this nerve.

Here we find that motor or contractile force is given off to every organ, as far as is known, that is supplied with its fibres. Hence, the conclusion appears inevitable that, lung necessity demanding it, their supply is the same.

Dalton, in giving the physiology of the pneumogastric, says that, "in connection with the lungs, it has been studied chiefly as a nerve of sensation." But experiments have proved that this property is not possessed by them in any unusual degree; hence, as a certain number of sensitive fibres accompany all that are of motor character, it follows that the chief portion of the supply to the lungs is motory.

Now this important nerve, although nominally one of the cranial group, receives all its motor fibres outside the cranial wall, its sensory fibres alone coming directly from the medulla oblongata, the motor fibres being furnished by the spinal accessory, hypoglossal, facial and first and second cervical nerves.

It will be remembered that Dr. Salter denied the expiratory character of the bronchial muscles, because their fibres were organic or involuntary, while those of the inspiratory muscles were voluntary. Yet it will be seen that the origin of the fibres supplied by the pneumogastric to these muscles is from the same section of the cervical cord whence originate the fibres that supply the muscles of inspiration. Consequently the objection is without foundation for support.

It has been found by experiment, that when paralysis is produced by severing a motor nerve having sensitive filaments distributed to a mucous surface, the normal secretion of that surface is at once arrested, but followed immediately by an increased discharge wholly abnormal in character, the paralysis apparently instituting a profuse excretion in place of the natural secretion of the parts. This fact is of great importance when considered in connection

with asthma and the two diseases so often connected with it.

Considering the lungs as a double flexor muscle, it is easy to see what the result will be in case of its paralysis; for I hold the law to be invariable, that when the equilibrium established by antagonized muscles is disturbed by paralysis of one muscle, or set of muscles, there is an immediate excess of action in the other, its antagonist; and the bony lever, or soft tissues, whatever it may be to which the muscles are attached, will be carried away from a median line to the side where the muscular force still retains its nerve supply intact. This is exactly the condition that exists in a paroxysm of asthma; the chest walls being carried out beyond the line of ordinary to that of forced inspiration, and held there; and we claim that it is absolutely impossible for this condition to exist upon any other basis than paralysis of the bronchial muscles and lung lobules.

This condition of divergence from a median line by paralysis of a muscle or set of muscles, is well seen in facial paralysis, where the mouth is drawn to one side. It is also distinct in strabismus, ptosis, torticollis, the wrist-drop of lead-poisoning, and particularly in the lower limbs when paralysis of the extensors gives rise to contraction of the flexors, the result being the forcible flexing of the leg upon the thigh.

The foregoing are not all the facts that indicate that paralysis has unbalanced respiratory action in asthma, for we find additional proof in the study of pulmonary emphysema, in regard to the pathology of which we have had at least three distinct theories. When Lænnec, upon the theory that the forces in inspiration were greater than those of expiration, claimed that the distended air cells in emphysema were occluded, and unable to expel their contents, the air became heated to expansion, the theory seemed plausible, and was by many adopted. But Dr. Gairdner, holding opinions exactly the reverse of those of Lænnec, in regard to the respiratory forces, advanced the theory that certain air vesicles expanded as others became collapsed; that there was no difficulty in the expulsion of a plug of mucus that might occlude a small bronchial tube, but when expelled it would be at once returned by a counter current of air, when, acting as a valve, the air would become exhausted in the vesicles, and their

collapse occur as the result. Then other vesicles would be called upon to do an increased amount of work, and doing that work, would become permanently expanded. While the theory of Jenner was based upon the supposed inequality of pressure produced by the thoracic walls in expiration. These different theories are, in my view, incorrect, and necessarily so, from a misconception of lung power having been formed and advanced, under the ban of elasticity.

Yet it is a fact worth noticing, that no spasm theory, such as obtains in asthma, has ever been broached; for the conditions of lung and chest expansion, and expiratory insufficiency, and the auscultatory sounds, with the complication of bronchitis, are just what we have in asthma, save that emphysema is more limited as to the amount of lung structure involved, but more permanent as to time.

We know that emphysema, except the senile form, is almost invariably preceded by asthma, and so common is this connection, and so similar the abnormal appearances between them, that asthma may be looked upon as the acute and emphysema the chronic condition of the same pathological lesion. The paroxysm of asthma is, as a rule, self-limited, yet often recurring, the delicate structure of the air vesicle suffers. Continually put upon the stretch, their minute fibres lose their vitality, and disintegration, to a certain extent, follows. And that the innutrition and ultimate decay of these fibres are the result of the paralysis and over-distention of these vesicles during the asthmatic paroxysms we cannot doubt, for no fact is better established than the relation between the normal exercise of function and healthy nutrition; and as emphysema so often follows, but never precedes, asthma, it does not seem difficult to reach a conclusion in the premises.

In accord with the idea of expansion from paralysis, is a case mentioned by Dr. Williams,\* where certain vesicles were largely distended beyond a constriction produced by a pleuritic band of adhesion, this constriction undoubtedly cutting off largely the nerve and nutrition supply.

Of the same import is a case of thymic asthma reported by Dr. Armstrong,† in which an enlarged thymus gland pressed heavily upon the vagic nerves. Death followed an asthmatic

\* Braithwaite, part 45, p. 74.

† Braithwaite, part 24, p. 80.

paroxysm complicated with convulsions. Morbid anatomy, carnification of posterior portion of both lungs, with pale condition of larynx and trachea. The head was not examined; had it been, the cause of the convulsions would, perhaps, have been there, as the large vessels of the neck were nearly occluded by the pressure of the gland.

That the asthmatic symptoms that had existed for weeks were associated with paralysis of the pulmonary apparatus from the continued pressure on the vagi, is evident from the pale condition of the larynx and trachea, while the solidification of the lungs was probably such as occurs from the paralysis which follows the section of the vagi in the lower animals.

Recent experiments of Brown-Sequard\* exhibit the fact that when there are injuries to the base of the brain we often have pulmonary hemorrhage, cedema and emphysema, and that the latter will occur even when the injury is sufficient to arrest respiration, and certainly this can be explained upon no other hypothesis than paralysis.

Rindfleisch,† in considering the morbid condition of the lungs in emphysema, is forced to the conclusion that the lack of nutrition always follows, but never precedes the distention. This is in consonance with the fact that paralysis always restricts nutrition in muscular or contractile tissue. In addition to the paralysis we have two morbid conditions that are a direct outgrowth of it, and of which there is an intimation by Rindfleisch; first, the vesicular fibres are put upon the stretch; second, the excess of air and non-depression of the chest walls are inhibitory to the circulation of the bronchial arteries and their capillaries, from which nutrition is derived.

Now, as all of these adverse conditions are found in paroxysmal asthma, we can clearly see how the recurrence of the paroxysms for months and years tends to exhaust these delicate fibres, and fit them for the permanent paralysis of emphysema.

Hence, as asthma and emphysema, in a vast majority of cases, stand to each other as cause and effect, the vesicular expansion being the same, save that it is temporary in the one and permanent in the other, it must follow that, as the lung or vesicular expansion in emphysema is

clearly due to paralysis, the expansion of the same tissue in asthma is from the same cause. And that emphysema is more limited in the amount of lung involved, does not at all invalidate this conclusion.

I will now pass from the analogy between these two diseases, to that which exists between asthma and the peculiar condition of the lower animals, when their pneumogastric or vagi nerves have been severed. No adherent of the spasm theory will claim its existence in this case, when the motor nerves that supply the bronchial muscles have been severed in the middle of the neck. Yet, when this vivisection has been performed on a dog or cat, the condition that follows is apparently identical with what we see in a paroxysm of asthma. Yet we know with certainty that there is no spasm, but absolute paralysis in the bronchial tubes.

Dalton,\* in reference to the section of the fifth nerve, says: "If, however, the fifth pair itself be divided, not only is general sensibility destroyed in the Schneiderian membrane, but a disturbance begins to take place in the nutrition of its tissues, by which it is gradually rendered unfit for the performance of its special function, and the power of smell is finally lost. The mucous membrane, under these circumstances, becomes injected and swollen, and the nasal passages become obstructed by an accumulation of puriform mucus."

According to Longet, the mucous membrane assumes a fungous consistence, and is liable to bleed upon the slightest touch.

Now, these are the conditions that pertain to nasal catarrh:—The swollen condition of the mucous membrane, exudation of blood, accumulation of mucus in the nasal passages; the mucus surface often denuded of its membrane from innutrition in its chronic cases, with the sense of smell and sensation gone. I have a patient under treatment for this disease, in whom it is of long standing, and in the right nasal fossa, which is most involved, a camel's-hair brush can be passed deeply into the cavity, without exciting the least sensation in the parts, so complete is the paralysis of the sensory nerves.

Here, then, are certain conditions that exist from paralysis of the fifth nerve. The same conditions essentially exist in the lungs and bronchial tubes when the vagi have been severed, as already stated, when, of course, absolute paralysis exists. And in asthma we have the

\* London *Lancet*, April 1871, p. 192.

† Pathological Histology, p. 387.

\* Human Physiology, fourth edition, page 430.

same swollen mucous membrane, and the mucus streaked with blood (bronchitis), when, in chronic cases, lack of nutrition and destruction of alveolar walls occur, when emphysema supervenes.

Now, can we doubt that this bronchitis of asthma bears the same relation to the pneumogastric that the nasal catarrh does to the fifth nerve?

Another feature in asthma is the peculiar wheezing sound, which is heard in no other disease save emphysema, and in a paroxysm of asthma, where we can exclude the other disease, it becomes pathognomonic. Dr. Salter attempts to account for it by the claim that it is the result of air forced through the spasmodically constricted tubes of the smaller bronchi. But there are two facts which appear to exhibit this conclusion as an error: first, it is not the sharp, clear-cut sound that we should have if air was forced through a well defined stricture caused by spasm of the circular fibres; second, the encroachment upon the capacity of the same tubes at the same point, in their transverse diameter, which occurs in capillary bronchitis, gives rise to no such sound. But paralysis, as already stated, enables the inspiratory muscles to make powerful traction upon these tubes by the chest expansion; and the secondary forces of expiration, chiefly the abdominal muscles, being still intact, the chest walls are, to some extent, depressed at each expiratory effort. Now, in ordinary expiration, when all the powers of movement are well balanced and in normal action, the movement is a wave of contractile force beginning in the air vesicles and involving successively the contractility of the smaller, then the larger bronchi, and then the trachea and larynx.

In asthma this continued contractile power is lost; and when the abdominal muscles depress, to some extent, the chest walls, and press a portion of the surfeit of air upon the smaller bronchi, these, being powerless, are not able to receive and transmit it properly; and not being able to contract, they cannot adapt themselves to the lessened space between the root or base of the lung and the bronchi periphery at each expiratory effort; consequently they bend upon themselves, when their lax sides falling together, the sound is produced as the air is forced through between them.

(To be Continued).

# TREATMENT OF INFLAMMATION OF THE NERVOUS CENTRES AND THEIR APPENDAGES, AS IT OCCURS IN INFANCY.

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Allow me to submit to the many readers of your valuable REPORTER, for their consideration, my views in regard to the treatment of cerebritis, spinal meningitis, cerebro-spinal meningitis, and other diseases of the nervous centres and their appendages, essentially inflammatory in their character, as they afflict children. Without dwelling on the nature or symptoms of such diseases any further than is necessary to illustrate and make plain the rationale of my treatment, I will begin by saying that I rely principally upon nauseating doses of tincture of veratrum viride (Norwood's) to control the heart's action, and so put a stop to the inflammatory process. To allay irritation, relieve pain and secure sleep, I give chloral hydrate in sufficiently large and repeated doses to secure the desired results, while to promote absorption and restore the structures to their normal condition, and at the same time to counteract any vestige of inflammation still remaining, I would apply a blister from the occiput to the sacrum, from an inch and a half to two inches wide. This, with warm bathing, attention to the condition of the bowels, stomach and gums, worms, and other sources of irritation, constitute my treatment of such cases.

Now, as to the rationale of such treatment, my experience has led me to think that there is no remedy more reliable, to check the pulse, put an end to convulsions having their origin in the nervous centres, and secure quiet rest, than nauseating doses of tincture of verat. viride, say one to five drops, repeated every hour till it produces emesis. While the pulse has been reduced from 150 or 120 to 70 or eighty per minute, the inflammatory action is suspended and cannot again be renewed so long as the heart has all it can do to keep the blood in circulation. Active inflammation cannot again assert itself, so long as the heart has not power over and above what is necessary to keep the blood circulating normally throughout the system. Now, if the heart's action can be controlled in this way, until the tendency to morbid or excessive action in the nervous centres is removed, nothing fur-



ther than a careful regimen and proper nursing will be necessary to restore our little patient to health. But we sometimes find that such heroic treatment is too prostrating, and has to be suspended in order to give the system time to recuperate, and in the meantime we may have many of the symptoms of the disease, such as opisthotonos, thirst, fretfulness, sharp screaming and sleeplessness, return, and contribute each their share in wearing out the strength of the patient. In just such cases chloral hydrate proves a most valuable auxiliary. Its property of reducing the amount of blood in the nervous centres, after a very short period of hyperæmia, makes it the most valuable of all our hypnotics. It should be given in doses large enough to keep the little sufferer quiet, not solely for the purpose of relieving pain and securing sleep, but for its curative effect. In other words, for the purpose of diminishing the amount of blood in the brain.

If this treatment should not be sufficient to check the disease and remove all the most dangerous symptoms, particularly the sharp screaming and the opisthotonos, in six or eight hours, recourse should be had to vesication throughout the entire length of the spine. As to how vesication exerts its influence on the morbid action, I leave wiser heads than mine to conjecture, but that it does in many cases exercise a controlling influence over inflammatory action, no close observer who is not prejudiced, I think, will deny. Such is a general outline of my treatment, of late, with results much more satisfactory than before.

# REPORT OF A CASE OF ATROPIA POISONING.

BY T. E. MURRELL, M. D.

Read before the College of Physicians and Surgeons, Little Rock, Ark.

Wm. Barry, aged 40, an inmate of the Ladies' Benevolent Hospital of this city, was under my treatment for granular lids, with ulcer of right cornea. Under my directions he was taking three times a day thirty drops of a mixture of tincture of iron and quinia, and using a four-grain solution of atropia in his right eye. He kept the two bottles near his bed, and, without my knowledge, administered them to himself, which I supposed was done by the hospital nurse.

On Sunday, July 9th, I received a message to

come to the hospital at once. On arriving I was told that Barry had taken his medicine immediately before eating his dinner, and after a hearty meal lit his pipe, remarking how well he felt, and that he would "now have a good smoke." In a little while, dropping his pipe, he placed his hands to his head and said that a queer feeling had come over him, and at once went and laid down on his bed. The hospital attendants could get no satisfactory information from him after this. It was about an hour after he had taken the medicine when I first saw him, and some half-hour after the symptoms came on. I found him with flushed face, full, strong, hard and bounding pulse, almost stertorous breathing, with much somnolency, and great impairment of all the senses. When aroused and raised up he would look wildly around, and when addressed in a loud voice would mutter some incoherent words. There was great muscular tremor, and muscular weakness, particularly of the lower extremities, insomuch that he was unable to stand when aroused, although at the same time he exhibited considerable strength in his arms. He passed his urine involuntarily.

I first tried to administer an emetic, but, owing to the difficulty of deglutition, could not get him to swallow enough to produce emesis. I called to my assistance Dr. Lenow, who, with his stomach pump, succeeded in thoroughly emptying his stomach. We now gave hypodermic injections of morphia, half a grain every hour, until he had received two grains, with ammonia and whisky internally, which he could only be forced to swallow, in small quantities, by throwing his head back and holding his nose while the medicine was placed in his pharynx with a spoon. It was with the utmost difficulty that he could be kept aroused. We resorted to dashes of cold water, flagellation, rolling on barrel, and walking, or, rather, dragging, between two men. Although there seemed so much muscular prostration, whenever his nose was held and the medicine put in his pharynx to swallow, it took two stout men to hold him, and as soon as this was over he would relapse into the same stupid condition as before. I inferred from this that swallowing gave him great pain. This treatment was kept up from two until ten o'clock P. M., when he was able to stand alone, showed much less drowsiness, talked incoherently, noticed what was said to him, and gave evidence of very

ludicrous hallucinations. Thinking him out of danger, I now left him, with two men to watch him, and to notify me in case he got worse.

He was kept awake all night, and the next morning, at 7 o'clock, I found him in his right mind, and, as he said, feeling very well, except that he was very sore, from the muscular exercise he had gone through. He was unconscious of anything that had transpired, from the first effects of the medicine until he recovered, some eighteen hours. His troubles did not end here, however. For several days he suffered very much from dysuria, which was relieved by flaxseed tea and Hoffman's anodyne.

I could never get any witness to his taking the atropia solution, and now he thinks he took out of the same bottle as usual, but the evidence warrants a mistake, and the symptoms and result of treatment go to prove the correctness of the diagnosis. He also remembers his throat feeling very dry before he became unconscious, which, together with the other symptoms and sequelae, is unmistakable evidence of atropia narcotism. Thirty drops of the solution would have introduced into his system about one-fourth of a grain of the sulphate of atropia, which, no doubt, was absorbed when I first saw him.

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## MEDICAL SOCIETIES.

### PROCEEDINGS OF THE MEDICAL AND SURGICAL SOCIETY OF BALTIMORE.

Reported expressly for the MEDICAL AND SURGICAL REPORTER, by G. L. Wilkins, M. D.

#### Ergot.

Dr. A. B. Arnold. While the physiological effects of ergot are well understood, yet there are certain noted points that we shall take occasion to briefly refer to.

Notwithstanding all the facts to the contrary, there are some who are disposed to doubt that ergot will originate or accelerate uterine contractions. It is well known that this drug has for years been used in various parts of Europe, by midwives, for the purpose of increasing the pains and hastening delivery. It is equally well known that abortions are of more frequent occurrence in those localities where the bread of the inhabitants contains a certain quantity of spurred rye; but here, habit may serve to explain the want of uniformity in its action. Experiments made on animals demonstrate that ergot will bring on premature labor, and it is occasionally taken by females to produce abortion; yet there are many who are disposed to give a negative importance to these facts. If

we are governed by most authorities on this subject, we may safely conclude that ergot will produce uterine contractions; but, inasmuch as its peculiar influence is exerted through the nervous-centres, it is likely to prove most effective at the end of the full period of utero-gestation, at which time the nervous centres are in a condition approximating that produced by the physiological effects of ergot, and hence they are more susceptible to its influence.

It may be questioned whether ergot will have the same effect in the non-parturient uterus. I think we are justified in concluding that it will not, although I will not assert that it is always inert or useless.

Of late years ergot has been used to assist in the expulsion of sub-mucous fibroids of the uterus, and as these tumors are always associated with more or less irritability of the uterus, I think, for the reasons above given, that it offers very fair chances of success.

As regards the influence of ergot as a hæmostatic, I believe the profession very generally admit its value. As a result of a series of experiments made on animals, Brown-Séquard concludes that it controls hemorrhage through its peculiar influence on the unstriated muscular fibre. The hæmostatic value of this medicine is illustrated in a number of diseases of the uterus in which hemorrhage constitutes a prominent symptom. In this connection I will mention an anomaly in the occurrence of hemorrhage after the administration of ergot. A lady, aged twenty-two, has for the past three years had a small intra-mural fibroma. As the tumor was not pedunculated, there was no opportunity for enucleation, consequently ergot was given for its supposed influence on uterine fibroids, when it was found that the hemorrhage, which had heretofore been moderate, returned with still greater violence, and persisted until it was discontinued. This fact is in accordance with the observations of Schroeder, who says that, in opposition to the recognized efficacy of ergot, a case will sometimes arise where it will increase hemorrhage. This appears to be due to unequal contraction and rupture of the vessels in the congested mucous membrane, or sometimes to the fact that strong contraction of the uterine muscular tissue compresses the bleeding mucous membrane.

Ergot has been highly lauded in hæmoptysis, especially by Anstie, but, as far as my experience goes, I have not been favorably impressed with its value in this form of hemorrhage. The experiments of Brown-Séquard demonstrate that the peculiar influence of ergot is mainly directed to the lower segment of the spinal cord, therefore the inference may be drawn that ergot will be the most effectual in hemorrhage from those parts that take their nerve supply from the lower part of the cord. According to my experience, ergot is most valuable in post-partum hemorrhage and hemorrhage threatening abortion or premature labor.

From its affinity to produce contraction of

the blood-vessels of the cord, it is also indicated in certain forms of paralysis, as dribbling of the urine, a form of paraplegia or reflex paralysis from a disturbance of the genito-urinary organs, etc. For the reasons before given, its therapeutical effects are not applicable to diseases of the brain.

Dr. Erich. I am inclined to explain the exceptional cases where hemorrhage follows the administration of ergot to either the bad quality of the drug or to insufficient administration. If Dr. A. would try five or ten grains of Squibb's watery extract in the form of a suppository, I think he would find it more satisfactory. When ergot is first given it will sometimes produce an increased flow, by the contraction and the expulsion of the increased amount of blood from the over-distended uterine vessels, but if it is persisted in after this it will be found to arrest the hemorrhage. Notwithstanding the fact that ergot will produce contraction of the uterus, it will prevent abortion. For abortion to take place, two indications must be met: relaxation of the cervix and contraction of the fundus. Ergot, by producing regular contractions of the fundus and controlling hemorrhage, at the same time prevents dilatation of the os, and in this way I have often succeeded in preventing abortion. In labor it is given at a stage where dilatation has so far progressed that the contractions of the fundus counterbalance the resistance in the os.

Dr. Lynch suggested that the hemorrhage in Dr. A.'s case might be due to constriction of the base of the tumor, thus causing congestion and exudation in its summit.

Dr. Leibman. I have met with several cases where ergot has apparently increased the hemorrhage in abortion, and at times in a very violent manner. In one case, the hemorrhage could only be controlled by the administration of morphine.

Dr. Evans. The want of uniformity in the action of ergot leads me to the conclusion that it has no especial influence in producing contractions of the uterus, its influence as a motor stimulant of the uterus being only exerted in the same sense as quinine, brandy, or other diffusible stimulants.

Dr. Cathell. I must dissent from the opinion of Dr. Evans. It is the experience of most all physicians that it will not only produce contractions of the uterus, but that it will produce contractions sufficiently peculiar to distinguish them from the ordinary pains of labor. The contractions caused by ergot are characterized by their painfulness and by their tetanic or continuous character, scarcely any interval of repose occurring until the effects of the medicine have passed away. I have given ergot in atonic conditions of the uterus, with the effect of immediately bringing on contractions, and terminating an otherwise prolonged labor, and I have never found labor-pains to return unstimulated after they had once ceased.

Dr. Arnold. History, experimental investigations and experience all demonstrate that ergot will produce uterine contractions. It is well known that "dry gangrene" is caused by extreme contraction of the blood-vessels; and Brown-Séquard has proven, by the hæmatometer, that the blood-vessels are measurably contracted under the influence of ergot.

Dr. John Morris. It is singular that when a great majority of authors warn us of the danger to both mother and child that may result from the indiscriminate use of ergot, and the great necessity of caution and judgment in its administration, any one should doubt that it has a special influence on the uterus. I think the weight of experience proves beyond peradventure that it is a most valuable excito-motor stimulant of the uterus, acting through its influence on the lower part of the spinal cord.

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## EDITORIAL DEPARTMENT.

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### PERISCOPE.

#### Physiology of the Nerve Centres.

The following are Dr. Brown-Séquard's recently promulgated views:—

1. As regards localization of function, a great many facts lead to the view that the nerve-cells endowed with the same function, instead of forming a cluster, so as to be in the neighborhood of each other, are scattered in the brain, so that any part of that organ can be destroyed without the cessation of their function. It makes no difference whatever whether

the distance between nerve-cells employed in the same function is a small fraction of a millimetre or very much greater, as in either case their communications with each other must take place by conductors (nerve-fibres), the length of which is unable to interfere with the function.

2. Each half of the brain is a complete brain originally, and possesses the aptitude to be developed as a centre for the two sides of the body, in volitional movement, as well as in all the other cerebral functions. Still, very few people develop very much, and perhaps nobody quite fully, the powers of the two brains; and, on the contrary, in most persons

only one of these two primitively similar organs acquires great power for certain actions, and the other for other actions.

3. Communications between the body and the brain can be more or less fully accomplished by means of a very much smaller number of conductors than would be necessary according to any view like the well-known clavier theory. As we know that the will only gives an order, and as we know by clinical facts that any part of the medulla oblongata can be destroyed without paralysis, and that in some cases a very small portion of it has proved sufficient for the persistence of voluntary movements, it would seem that the order may be transmitted as well by one fibre as another, and that it is necessary to recognize the existence of faculties of a much higher order in the nerve-cells of the spinal cord than those which are admitted to exist there. Many facts and a similar reasoning tend also to show that the nerve-cells of the spinal cord possess, as regards sensibility, faculties of a higher order than those which are admitted.

#### Mercury in Injuries to the Eye.

Mr. W. Spencer Watson has these remarks in the *Medical Times and Gazette*, of London:—

It sometimes happens that after an abrasion of the cornea, and especially after lime accidents, the iris becomes rapidly affected, hypopyum forms, the margins of the pupil become tied down by adhesions, and atropine fails to expand it. Now, it is very important in such a case to distinguish between the hypopyum due to escape of pus from between the corneal layers into the anterior chamber, and the condition of iritis with effusion of plastic lymph into the anterior chamber from the anterior surface of the iris. The appearances are nearly similar, so far as the color and position of the effused lymph or pus are concerned: in either case there is a yellowish deposit, with a distinct upper straight limitary surface, lying in the lower part of the anterior chamber; but in the case of purulent keratitis there is also a very distinct effusion of pus in the substance of the cornea, generally occupying a considerable proportion of its area, perhaps as much as one-quarter or one-third of the whole corneal surface, and very much obscuring the view of the pupil. On the other hand, when a wound or abrasion of the cornea is followed by iritis with effusion of lymph or pus in the form of hypopyum, but without suppurative keratitis, the greater part of the cornea remains clear, the site of the wound itself being the only nebulous or opaque portion, and this being free from the peculiar yellowish aspect of purulent effusion. It is in these latter cases only that mercury should be given, and it should be so given as to affect the gums as rapidly as possible, atropine being used simultaneously, and applied frequently and steadily. Mercurial inunction, and calomel and opium in the form of pills, will be the best form of giving the mercury as a rule, but the oleate of mercury

is perhaps a still more efficient and rapid means of affecting the system. There is no object in producing salivation. If the gums are just rendered spongy, the iritic adhesions will always give way under atropine properly applied, and it is then time to substitute iodide of potassium for the mercurials.

In very aged or very debilitated persons this plan of treatment will not succeed; but I have almost invariably found that the form of hypopyum without suppurative keratitis only occurs in the comparatively vigorous, whereas in the debilitated and ill-fed suppurative keratitis is the most common form, and the hypopyum is a later symptom, due to escape of pus from the corneal layers into the anterior chamber. In these cases, good nourishment, tonics, and soothing local applications are the most important remedies, and mercurials are contra-indicated.

As a general rule, therefore, hypopyum appearing early after injuries to the cornea as a concomitant of acute iritis is an indication for giving mercury in such a way as to affect the gums rapidly; but when hypopyum occurs subsequently to, or as an associated symptom with, suppurative keratitis, mercury should be withheld, and tonics and good nourishment relied upon as the chief remedial agents. In other words, when iritis is the prominent feature, give mercury; when keratitis, tonics. Atropine is equally appropriate in either, and if used early after the receipt of an injury, prevents the question of mercurial treatment arising, by securing an early dilatation of the pupil and keeping the muscular tissue of the iris in a state of rest little favorable to that of inflammatory action. It is very remarkable that, after injuries caused by lime or other corrosive substances being thrown into the eye, there is a much greater tendency to iritis with effusion of plastic lymph in the form of hypopyum than after any other kind of injury—except, perhaps, those penetrating the cornea. Hence a knowledge of the history of the case will often be some guide as to the propriety of giving mercury; for where, from the local symptoms, we might derive only doubtful indications, the history of a lime accident would decide the point in most cases.

#### Persistence of Sensibility in Divided Sensory Nerves.

The *Lancet* states that MM. Arloing and Tripièr have recently made some important investigations on the persistence of sensitiveness in the peripheric extremity of divided sensory nerves. They find that this sensibility may be demonstrated in carnivora, solipedes, and rodents. In all instances, and they have found it to exist in the branches of the fifth, and in the nerves distributed to the limbs, the sensitiveness of the peripheric end is due to the presence of nerves, the connection of which with the trophic and perceptive centres has not been interrupted by the section. When these



nerves happen to be absent the peripheric extremity of a divided trunk is no longer sensitive. The nerve-fibres in question proceed from the fifth pair, in the case of the facial from the adjoining nerves, and from those of the opposite side of the body in the case of the ordinary sensory nerves, and from neighboring and homologous nerves for the nerves of mixed function. The recurrent nerves run up to a variable height in the trunk of the nerve with which they are associated, and their number diminishes in passing from the periphery toward the centre. The loop or point of recurrence of these fibres may take place before the termination of the nerves, but usually occurs at the periphery.

#### On Wry-Neck.

On the occasional forms of this trouble, Dr. A. J. Steele writes, in the *Transactions of the Missouri State Medical Society, 1876*:—An adult exposed to a cold draft of air, as from an open window, falling especially upon the neck, may have an attack of cervicodinia, a painful affection of the muscles of one side of the neck, to relax which the patient holds his head awry. This so-called muscular rheumatism is usually a transient affair, but may become chronic, and thus occasion permanent deformity, designated *torticollis rheumatica*. In the acute stage, the treatment should be, internally, salines and possibly quinia; externally, hot anodyne fomentations, the continuous galvanic current and hypodermic injections of atropia. In the chronic form, guaiacum internally, and friction and galvanism locally, will relieve the stiffness of the muscles and allow the head to assume its more normal position. Assistance can further be gained by faradizing the lengthened muscles, thereby increasing their contractile power.

There is another adult affection to which this region is subject, termed *torticollis spasmodica*, in which, when fully developed, the head is subject to constant twitchings, being drawn to the side of the disturbed muscles. For a time the muscles of the sound side resist, and re-straighten the head, but as weeks or months go on, this contest is seen to be unequal, and the healthy tissues become permanently relaxed, not even replying to the strongest will effort, and the wry-neck becomes fixed. During sleep, or lying down with the head supported, or under anæsthesia, the jerking ceases; while on the other hand, whatever disturbs the general health, or causes emotional excitement, increases it, as also does physical exertion. The contractions are often accompanied by pain. This condition may be but one aspect of a more general nervous affection in which the muscles of the face, or of the shoulder, or of the arm, or of deglutition, or of the leg, are involved, but it is the rule that the muscles of the neck only are affected. No constant or general exciting cause can be given for this spasmodic condition, nor are we familiar with its primary cause.

Electricity exerts a decided influence on the parts, and has been employed with marked temporary benefit. Its rule of application is this: To the contracted muscles the continuous current, inducing relaxation; to the elongated muscles, the faradic, or interrupted galvanic current, causing powerful contraction. Subcutaneous injections, both of morphia and atropia, afford temporary relief; the latter conjoined with the internal administration of bromide of zinc has effected cures. The wearing of an apparatus is judicious, in that it gives surcease to the twitchings for a time. Neurotomy, though occasionally successful temporarily, has not furnished the good results that might be expected.

#### Pleural Effusions and their Treatment.

Dr. Ringer, of the University Hospital, as reported by the *British Medical Journal*, says:—

As to tapping, it was formerly reserved for extreme conditions, but now we aspirate, either to assist absorption, or to save the lung. Hence it may be done early, say when the chest is half full of fluid. The febrile state may last twenty-five or thirty days, we need not wait till it is over. The effusion contains so much albumen as to be practically a bleeding, and should be stopped as soon as possible. After an early tapping, I have known fever to continue a fortnight without fresh effusion. We may classify cases into those with simple serous effusion and simple purulent effusion; either may be *with* fever or *without*, and all will probably do well with aspiration. Then there are cases where the pus is fetid; if there be no high fever, give these a chance with simple aspiration; and even if there be fever, though the case then is very grave, one trial should be given to the same plan before an incision is made, for I look upon the free opening of the chest as a very serious and risky affair. The case before us has done well with a single aspiration. Examining for the results, and judging of the amount of expansion of lung, beside auscultating, etc., we look at the angle formed by the costal arch in front; in health the angle should be obtuse, and nearly equal on both sides, perhaps more obtuse on the right, owing to the liver, whilst, if the lung have not expanded, the arch will have sunk in somewhat, and the angle be more acute; the shoulder of the affected side will be lowered, and the spine, whilst often curved with convexity toward the same side during the stage of effusion, will have an opposite direction when the effusion has disappeared." Another case of pleuritis, in which five pints of serum had been removed by aspiration, was somewhat unusual, as being secondary to Bright's disease. In this form of malady the progress is usually insidious, and yet the effusion rapid. We know, from the effect of blisters in such patients, how quickly effusion may be poured out in any part. Dr. Ringer does not think it necessary to stop the withdrawal at any definite quantity, nor does he consider cough an indication for with-

drawing the needle, only if much pain be complained of, or if blood begin to come.

The *Centralblatt* states that from a series of observations made during fifteen years in Frerich's wards, with special reference to operative interference, C. A. Ewald arrives at the following conclusions:—1. In cases of serous effusion in the pleura, puncture should be performed before the third week, only if life be in danger. 2. If puncture be made under exclusion of air and with previous disinfection of the instrument, no serous exudation becomes purulent. 3. The only means of determining with certainty whether a pleural effusion is serous or purulent, is an exploratory puncture. 4. Incision, with puncture, should be made as early as possible into purulent exudations. 5. The mortality after incision into purulent effusions is from 50 to 60 per cent. when they are treated according to the present plan (incision in the sixth intercostal space between the nipple and the anterior axillary line, washing out with disinfectants once or twice daily, a catheter being retained in the wound, or one or more ribs resected). 6. Sanguineous effusion (in which blood becomes mixed with the exudation in consequence of the dilatation of vessels, leading to their rupture) is always the result of malignant growths of the pleura. 7. Serous exudations do not exclude the presence of tuberculosis and cancer of the pleura.

#### Attitude in Heart Diseases.

Dr. Gueneau de Mussy, in a communication to the *Gazette des Hôpitaux*, points out that one of the most frequent functional signs of cardiac affections is the difficulty that patients experience in preserving the horizontal position during sleep, generally requiring to have the head raised by several pillows. Nevertheless, it is not always the case, for there are some who can bear it, and some who even prefer it. These latter are generally affected with aortic insufficiency, and he explains the peculiarity thus: When the aortic orifice, incompletely closed by its valves, permits a reflux of blood to the ventricle, the reflux is accomplished under the double influence of the weight of the blood column and the contraction of the aorta. The first of these influences acts to its full extent in the vertical position of the trunk, and is almost annihilated in the horizontal, so that suppressing one of the co-efficients the inconveniences of the lesion are lessened, and a relief produced which instinctively makes the patient seek the horizontal position.

It is otherwise in lesions of the auriculo-ventricular orifices; the vertical position of the trunk renders the reflux of blood into the auricle less easy, and is instinctively chosen by the patient.

In patients suffering from cardiac affections there is another circumstance which exercises a considerable, and, probably, preponderating

influence on the attitudes that they choose in decubitus. It is the state of the respiratory organs. Emphysema and pulmonary congestion demand the position that leaves the greatest freedom to the parts of the lung that can respire. The relative slowness of pulmonary complications in cases of aortic insufficiency is one of the principal causes that permits patients to assume horizontal decubitus; whilst in mitral lesions these complications supervene much more rapidly.

#### The Causes of Stone.

The *Doctor* states that Dr. Debout D'Estrees, medical instructor of the waters of Contrexéville, presented a memoir to the Académie de Médecine on the causes of stone, of which the following are the conclusions:—

Gravel formed in the kidney can comport itself in different ways.

1. It may pass from the kidney into the bladder, determining pains more or less acute, and most frequently a nephritic colic, which, according to the nature of the concretion, presents the following variations:—Uric acid gravel gives rise to pains, often so atrocious that the patient can scarcely localize them; it is the same with the oxalic acid gravel, but in this case hæmaturia is the rule, whilst it is the exception with the former. The duration of the colic is generally some hours. On the contrary, renal phosphatic gravel gives rise to crises which last often several days; the pain, although severe, is bearable, is localized to the kidney, and there is no hæmaturia.

2. Gravel develops in the kidney, and in the most favorable case does not give rise to any appreciable symptom during life; but most frequently it excites an eliminatory process which causes its expulsion externally in the lumbar region, into the abdomen, and then rupture of the tumor is followed rapidly by death; this tumor, formed by the distended kidney, contracts adhesions with the intestine, and the expulsion of the gravel is accomplished per anum.

3. Renal gravel lodged in the ureter may remain there, and give rise to accidents which are always grave. They vary according as the canal is more or less completely obstructed.

4. Gravel arrived in the bladder becomes, if not expelled, the nucleus of a calculus which increases in bulk, either by the addition of elements of the same nature or by the deposit around it of other salts of urine, and in particular phosphates. This deposit will take place when catarrh of the bladder exists, accompanied with ammoniacal fermentation of urine, or when the abuse of energetic alkalies (bicarbonate of soda, carbonate of lithia, Vichy or Vals water), rendering the urine alkaline, permits the normal phosphates of the urine to precipitate. The unusual termination of calculi, which has received the name of "spontaneous fragmentation of stones in the bladder," occurs either by splitting or exfoliation.

## REVIEWS AND BOOK NOTICES.

## NOTES ON CURRENT MEDICAL LITERATURE.

—The *Popular Science Monthly*, published by Appleton & Co., New York City, is one of the most highly esteemed journals of its kind in our language. It always has some articles of interest to the professional reader. In the October number we note the article of Professor Julius Bernstein, "On Observing the Interior of the Eye;" that by Professor H. Charlon Bastian, on "The Nature of the Invertebrate Brain;" "The Relations of Hospitals to Pauperism," by Dr. W. Gill Wylie, and others.

## BOOK NOTICES.

*A Treatise on the Science and Practice of Midwifery.* By W. S. Playfair, M. D., F. R. C. P., Professor of Obstetric Medicine in King's College, etc., etc. With two plates and 166 illustrations on wood. Philadelphia, Henry C. Lea, 1876. pp. 576.

So just is Dr. Playfair in his prefatory remarks that we must be excused a long quotation: "Those who have studied the progress of midwifery know that there is no department of medicine in which more has been done of late years, and none in which modern views of practice differ more widely from those prevalent only a short time ago." The author's object is to give an epitome of all recent advances. He recommends only those views which, after very deliberate reflection, he is profoundly convinced are right. "It is admitted by all that emergencies and difficulties arise more often in this than in any other branch of practice, and there is no part of the practitioner's work which requires more thorough knowledge or greater experience. It is, moreover, a lamentable fact that students generally leave their schools more ignorant of obstetrics than of any other subject. So long as the absurd regulations exist which oblige the lecturer on midwifery to attempt the impossible task of teaching obstetrics in a short three months' course—an absurdity which has over and over again been pointed out—such must of necessity be the case. This must be the author's excuse for dwelling on many topics at greater length than some will doubtless think their importance merits, since he

desires to place in the hands of his students a work which may in some measure supply the inevitable defects of his lectures."

Right well does the author perform his work. In clear, comprehensive language, he carries his reader forward, step by step, freely illustrating the anatomy of the parts and their relation to each other, by most excellent wood-cuts.

His subsequent chapters are: pregnancy, including conception and generation; the fœtus, signs of pregnancy, its abnormal form; diseases of pregnancy, abortion and premature labor; labor, its phenomena, mechanism of delivery, anæsthesia, various complications of presentation, etc.; obstetric operations, as turning, use of forceps, etc., closing with the puerperal state, its management, eclampsia, insanity, septicæmia, etc.

The student, and also the busy practitioner, will find here a rich mine from which he may obtain valuable information to aid him in his attendance upon the puerperal female.

We are glad to observe that the author figures the old method of extracting the placenta, by drawing upon the cord, as an illustration of what ought not to be done. The necessity of causing the uterus to expel the placenta itself is so great, this manœuvre is so beneficial, and the reverse so objectionable and dangerous, that we feel this point can never be too much dwelt upon. The whole chapter upon the management of a natural labor is by itself worth the price of the book. Indeed, authors generally seem to regard this matter of trivial importance, as though it were a thing too well known to need elucidation, while they dwell at great and tiresome length upon malpresentations, malformations, etc., matters which so rarely are encountered by the general practitioner. Particularly would we call attention to a wood-cut which illustrates better than any verbal description the proper mode of expressing the placenta.

Under the head of anæsthesia in labor, the author first speaks of chloral, the value of which, in this country at least, is now too well known to require much remark. Dr. Playfair says, "The peculiar value of chloral in labor is, that it may be safely administered at a time when chloroform cannot be generally employed. The latter, while it unquestionably annuls suffering, at the same time very frequently tends, in a marked degree, to diminish uterine action. This is a familiar

observation to all who have employed it much during labor, as the diminution of the force and intensity of the pains, and the consequent retardation of the labor, often oblige us to suspend its inhalation, etc. Chloral, on the other hand, has no such relaxing effects on uterine contraction. It cannot, it is true, compete with chloroform in its power of relieving pain, but it produces a drowsy state, in which the pain is not felt nearly so acutely as before. It is, therefore, in the first stage of labor, while the pains are cutting and grinding, and during the dilatation of the cervix, that chloral finds its most useful application. It is especially valuable in those cases so frequently met with in the upper classes, in which the pains produce intolerably acute suffering with but little effect on the progress of the labor \* \* \* When the patient is brought under the influence of chloral, however, the pains become less frequent but stronger, nervous excitement is calmed, and the dilatation of the cervix often proceeds rapidly and satisfactorily. Indeed, I know of nothing which answers so well in cases of rigid, undilatable cervix, and I believe its administration to be far more effective under such circumstances than any of the remedies usually employed."

Dr. Playfair seems to have fully grasped this matter: he says, "the object is to produce a somnolent condition which shall be protracted as long as possible. For this purpose fifteen grains of chloral may be administered every twenty minutes, until three doses are given. This generally suffices to produce the desired effect. The patient becomes very drowsy, dozes between the pains, and wakes up as each contraction commences." A fourth dose is rarely necessary. "On the whole," he says, "I am inclined to consider chloral a very valuable aid in the management of labor, and believe that it is destined to be much more extensively used than is at present the case; so far as my experience has gone, I have not met with any symptoms which have led me to think that it has produced bad effects; and I have known many patients sleep quietly through labor without expressing any excessive suffering, who, under ordinary circumstances, would have been most urgently calling for relief."

In treating of prolapse of the cord, the author does not fail to give due credit to Dr. T. Gaillard Thomas for his recommendation of the postural treatment.

Upon the subject of the forceps, we find our author fully up to the times. He counsels the use of this invaluable aid, and regards it as eminently a conservative instrument, more particularly to the child. He regards the statement of Churchill, "that one in twenty mothers delivered by forceps in British practice were lost," as a fallacy. Drs. Hicks and Phillips clearly show the truth of this, that such results are solely due to the delay in the use of the forceps. "If we find the progress slow and unsatisfactory, the pains flagging and insufficient, and incapable of being intensified, then, provided the head be low in the pelvis, it is better to assist at once by the forceps, rather than to wait until we are driven to do so by the state of the patient."

These words have the right ring, and we are glad to receive the aid of so powerful a champion in the cause of humanity; for we cannot but feel that it is but humanity to relieve suffering by every means in our power, and we are conscientiously of the belief that the forceps should be employed much more frequently than is at present the case.

In the treatment of placenta prævia he summarizes the rules as follows:—

- i. Before the child is viable, temporize, if the hemorrhage be not excessive. Rest in bed, cold astringents, etc.
- ii. After the seventh month no attempt should be made to prolong the pregnancy.
- iii. When it can be done, the membranes should be ruptured, thus favoring uterine contraction and compression of the bleeding vessels.
- iv. Hemorrhage checked, leave the case to nature; if not, and impossible to turn, plug, give ergot, and use compression to the womb.
- v. If, on removal of the plug, it be possible, turn, the bi-polar method being preferred. Otherwise, dilate with a Barnes bag.
- vi. Instead of, or before resorting to turning, the placenta may be separated around the site of its attachment. This is especially to be preferred when there is exhaustion.

But we might continue at still greater length, so fascinating have we found this book of Dr. Playfair's. We would earnestly recommend it to all our readers as a book which should occupy a prominent position on their shelves, and one, too, which they should constantly and carefully study.



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**Medical & Surgical Reporter,**

A WEEKLY JOURNAL,  
 Issued every Saturday.

D. G. BRINTON, M.D., EDITOR.

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ON PLEASURE AND PAIN. I.

When SOCRATES was about to drink the cup of hemlock, and the jailer had loosed the fetters which had galled his ankles, he rubbed them with a feeling of relief, and exclaimed to his disciples: "How singular is the thing called pleasure, and how curiously related to pain, which might be thought to be the opposite of it! for they never come to man together, and yet, he who pursues either of them is generally compelled to accept the other also. They are two, and yet they grow together out of one head or stem. I cannot help thinking, that if ÆSOP had noticed them, he would have devised a fable about some God trying to reconcile their strife, and when he could not, tying their heads together; and that this is the reason why, when one comes the other follows."

Such, according to the record in the *Phædo* of PLATO, were the reflections of the greatest philosopher of Greece, on these discrepant sensations. Up to the present time, so far as we can find, no satisfactory doctrine of their rela-

tions has been taught. Something much better than an Æsopian fable has indeed been brought forward to explain them. Theories, with more or less testimony to their truth, have been adduced. Pain, says BECLARD, is an excess of the sense of touch (*Physiologie*, p. 833). It is, says another physiologist, hyperæsthesia of the sensory fibres. The lexicographers seem to have been puzzled with it. Professor DUNGLISON calls it "A disagreeable sensation which scarcely admits of definition." The *Dictionnaire des Sciences Medicales* gets over it by the convenient statement that it is so well-known that to define it is superfluous! While Dr. GARDNER, in his *Medical Dictionary*, has a still neater device. Turning to pain, we read, "Pain, see Dolor." Hunting up Dolor we have the pleasure of finding "Dolor—pain!" Professor ERB, in ZIEMSEN'S *Cyclopædia* (vol. xi, p. 12-15), discusses the point at length, and comes to the conclusion that pain is a new sensation, experienced when excitation of the nerves reaches a certain intensity.

These quotations only show how little is understood of the origin of pain and its brotherhood with pleasure. To reach a better understanding of them, let us turn to the simplest conception of existence. It is change, motion; beyond this we cannot go. Individuality, the existence of the unit organism, this means motion in definite composition, what mechanicians call a *resultant* of motion, wherein many motions are united in a solidarity of action. But an organism is not this only, or it were merely a complicated machine. That in which it differs from a machine is in its power of keeping up its motion. This it does by the process of *nutrition*.

The first law of motion, as defined by Huyghens, and later by Sir Isaac Newton, is that *every body continues in a state of rest or of uniform motion in a straight line, unless acted on by some external force*. This law is usually said to result from "the property of inertia"—a meaningless explanation, as there is no such

property. The real explanation was hinted by the philosopher Kant, when he showed that *time* is a condition of perception, not a form of force or quality of matter, and, therefore, of itself can never influence motion, which belongs essentially to matter.

This first law of motion becomes the first law of philosophical biology, modified so as to allow the phenomenon of nutrition. In this form it is given by Auguste Comte in the following words: "*Every condition, static or dynamic, tends of itself to remain without any change, opposing itself to external force.* (*Système de Politique Positive*. Tome IV, p. 178.)

The new element which is here brought in is a resistance to external perturbations. In tissues this is seen in the qualities of elasticity, contractility and irritability. When the primitive motions of an organism are interfered with, these resist the interference, and that which enables them to do so is *nutrition*; the antagonizing force they expend is at once supplied by the blood up to a certain point. Beyond this nutrition cannot go, waste exceeds repair, and the primitive motions suffer loss, which, pushed to its extreme, means death of the part or system.

All external forces or perturbations whatever interfere with what we have called the primitive motions. Every movement of our bodies, all action does so. But so long as the repair is equal to the waste, the motions are strengthened by rhythmic action, and do not decrease. Hence exercise, not in excess, is beneficial.

The principle of opposition to outside influence, thus derived from nutrition, is the fundamental fact in self-preservation. As such it is confined to organism, and is a quality of it, not dependent on "inertia," nor on time as a condition of perception. Hence the famous maxim of the philosopher, Benedict de Spinoza: — "*Una quæque res, quantum in se est, suum esse perseverare conatur,*" is true only as to organic things. No *conatus* exists in inorganic life.

Thus the sentiment of self-preservation is prompted by nutrition, and to this also is referred repair and waste. Can we connect with these fundamental qualities of life the sensations of pleasure and pain? This will be the aim of our continuation of this article next week.

#### IS IT OUR DUTY TO HAVE SYPHILIS?

In discussing the assertion that one can have true syphilis but once, and that a first attack is protective in one's self, and even establishes a tolerance in the offspring, Professor RICORD used to propound and debate, in his peculiar serio-comic vein, the question—Is it not the bounden duty of every Christian father to contract a true chancre?

The point was taken up in all seriousness by Mr. JOHN WOOD, of London, in a debate on syphilis, at one of the societies, who maintained the cheering opinion that mankind is gradually becoming thoroughly syphilized, as well as civilized, and the former about in proportion to the latter! This, he believed, was shown by the diminished virulence of the disease as well as by the greater rarity of the true infecting chancre. He had found a disciple in Dr. ALFRED S. CARROLL, of New York, whose name is not unfamiliar to medical journalism. This gentleman maintains that "the preponderance of the chancroid is a matter of common observation, and it may be a question how far hereditary syphilization is concerned as a factor in this change. An interesting point of inquiry in this connection would be to ascertain the family history of patients with either form of sore. If, as I believe, the secretion from an inflamed true syphilitic lesion will produce a soft sore in a person with an acquired syphilitic taint, it seems probable that a hereditary taint may exercise a similar modifying influence: so, too, might perhaps be found a clue to some cases of 'mixed chancre.' The question in its simplest form may be thus stated: Is infecting chancre often seen in persons who have ever manifested inherited

syphilis? And this question may be worthy of an answer from future investigators."

On the other side of the question, Dr. CHARLES R. DRYSDALE writes from Paris, to the *Medical Press and Circular*, that there is in that "lupanar of Europe," as it has too harshly been termed, where, if anywhere, we might expect to find well established tolerance of *le mal Français*, a decided and acknowledged increase in the true sore.

Hereditary syphilis is a comparatively recently explored domain of pathology. As yet we know only its most obvious forms. The recent researches of Dr. JACOBI and Dr. TAYLOR, of New York city, show fertile larvated forms in this degeneration. Its relations to struma and tuberculosis are guessed at rather than ascertained. Its agency in rendering scarlatinal attacks fatal is not proven. But it is safe to say that it is a legacy which the Christian father may well be excused from desiring to transmit to his offspring.

Meanwhile the annual effort to repeal the excellent but inadequate English laws looking to a control of the disease was made before the adjournment of Parliament, and this time again unsuccessfully, as we are glad to announce. Commenting on the attempt, the *Medical Times and Gazette* says, of these laws:—

"Everywhere we find naval and military officers agreeing as to the improved health of the troops under their care where the Contagious Diseases Acts are enforced. Everywhere, too, we have testimony to the improved physical condition of the women themselves; that is to say, where hospitals were formerly too small to admit of the mass of disease needing medical aid and attention, those beds are now more than half empty. Where formerly the women admitted were masses of loathsome disease, the cases now seen are comparatively mild, and the constitutional effects not nearly so violent as heretofore. Nothing could be more striking than the condition of the two sides of the Lock Hospital here in London after the Contagious Diseases Acts had had time to come into full working order. On the Government side of the house the cases were comparatively slight—

nothing very serious was to be seen; but the fearful masses of disease on the civil side were almost beyond description."

We still hope these unanimous and repeated opinions of the leading physicians of England will have some effect in this country.

## NOTES AND COMMENTS.

### Hyoscyamine.

The physiological action of hyoscyamine has been carefully investigated by Dr. R. Lawson, who finds that in animals it first depresses and then quickens the pulse, reduces the temperature, and that it dilates the pupil as actively as atropine. In man its effect on the brain is more distinct than in animals. The first effect is excitement, and then hypnosis. It acts also as a diuretic. His paper appears in Vol. v. of the West Riding Lunatic Asylum Reports.

### The Radical Cure of Hernia.

The great frequency of hernia, and the degree of incapacity it produces, render its radical cure a surgical operation of unusual interest. The method devised by Dr. Greenville Dowell has been employed with striking success by himself and others in a number of instances, and the profession will learn with pleasure that he has written a complete *Treatise on Hernia*, which will be published in a few weeks from this office. It will be fully illustrated, and contain a full description of his operation, and also of the different varieties of trusses, methods of taxis, etc.

### Ozone Observations in Paris.

Since 1865, ozone estimations have been continuously made at twenty different stations in Paris, of the results of which M. Marié-Davy gives a diagrammatic summary in the monthly report of his observatory for May last. From this it appears that, while ozone abounds toward the periphery and in the open parts of Paris, it is present only as a trace in the denser central quarters. The fact of the recognizable presence of ozone, even in the populous parts, is something to boast of. Much attention is being given to the photographic delineation of the microscopic particles of the atmosphere, as well as to the products of

culture experiments with the living organic portion; and it looks like progress in the right direction to find a systematic table of "Matters contained in the air and rain," of each month, showing opposite each day, for the period of the day and the night, the proportion, in 100 cubic metres of air, of ozone, carbonic acid, ammonia, nitric acid, and organic matter, and per litre of rain-water, of ammonia, nitric acid, saline residue, and organic matter. Similar systematic comparative information, collected at different points in the same city, will soon supply a solid structure of fact regarding its comparative hygienic conditions.

#### The Questionable Value of Sutures.

Dr. E. H. Gregory, of St. Louis, has the following inquiry in a paper in the *Transactions of the Missouri State Medical Society*:—

The question suggests itself, whether, as a rule, it might not be well *not* to use sutures after amputations, or in similar wounds from other causes. In these cases raw surfaces are extensive, a variety of textures divided, more or less oozing inevitable, and the possibility of exact and homogeneous coaptation scarcely to be entertained. The observation of most surgeons must be, that in a large proportion of instances, on clipping the loops after a day or two, inflammatory products, offensive and poisonous, escape as from imprisonment, and the borders go apart as if relieved from painful tension; meanwhile there is febrile disturbance and local suffering. For our part, we think perfect rest, provision for drainage, and that position which favors relaxation and circulation, would be more in accord with the situation.

#### Treatment of Rheumatic Fever.

In St. Bartholomew's Hospital, London, an English cotemporary states that, in ordinary cases, Dr. Southey has had the best results from a mixture containing two grains of quinine and five grains of iodide of potassium, with a few minims of hydrochloric acid. Carefully prepared, this is clear, and agrees well. At the very commencement, if the tongue be coated and dry, a purgative and Carlsbad water, or citrate of potash, are advisable, but should soon be replaced by the iodized quinine mixture, which benefits under most complications as well as in simple attacks, relieves pain and sweating, and especially brings about a convalescence less

protracted than the alkaline treatment. Taking seven days as an average duration of severe symptoms in very favorable cases, and twenty-one or twenty-seven days in other cases, three weeks have been found the average total duration in one hundred cases treated by this plan. They are not blanketed; it is considered that this only bathes them in morbid perspiration. Perchloride of iron has not given satisfactory results; and blistering is often done to excess, and without any permanent relief. Tincture of iodine is, however, a useful local adjunct.

#### Abortive Treatment of Erysipelas.

Speaking of erysipelas, in his recent *Beiträge*, we find Professor Volkmann recommending an abortive treatment, which consists in removing all greasiness from the affected skin with a solution of soda, and then painting it for some distance beyond the visibly diseased area with a solution of nitrate of silver, of the strength of one part to eight. The painting requires sometimes to be repeated in twelve or twenty-four hours.

#### Antidote for Carbolic Acid.

As this acid is now so extensively used, it may be of some importance to make known the antidotes which have been proposed. M. Ferriand advises the following:—White sugar, fifteen parts; water, forty parts; quicklime, five parts—forming a saccharate of lime.

### CORRESPONDENCE.

#### The International Congress of Ophthalmology.

ED. MED. AND SURG. REPORTER:—

The fifth meeting of the International Congress of Ophthalmologists took place at Chickering Hall, New York, on the 12th, 13th, and 14th of this month. The attendance from abroad was not large, but our home representation was most creditable to the interest and enterprise of our native specialists. The total number of members registered as in attendance on the present occasion was about ninety.

The Congress was opened at 12 m. on Tuesday, the 12th, by the chairman of the committee of arrangements, Dr. Agnew, who nominated as chairman of this session, Dr. E. Williams, of Cincinnati. He was unanimously elected, and all felt that it was a fitting tribute, not only to his ability and high standing in the profession and in his specialty, but a deserving recognition of his early devotion to the science of ophthalmology, at a time when ophthalmologists in America, in the proper sense of the



word, could be numbered on the fingers of one hand.

Mr. Brundenel Carter, of London, and Dr. Hanson, of Copenhagen, were then put in nomination as Vice-Presidents, and duly elected. Dr. Buller, of Montreal, was appointed temporary Secretary, and Dr. C. J. Bull elected permanent Secretary and Treasurer, and Dr. R. H. Derby, of New York, Assistant.

After balloting on candidates, the regular scientific business of the meeting was entered into. There were two sessions held daily, from 11.30 A. M. to 1 P. M., and from 3 P. M. to 5 P. M.

Among the papers presented were the following:—

Dr. Noyes, of New York. Plastic Operations on the Lids; the Naso-buccal Flap.

Procedure for Lessening the Pressure of the Lids in Corneal Affections.

An Analysis of Eleven Hundred and Thirty-one Cases of Asthenopia.

On Conical Cornea and its Relief by Operation.

Dr. Knapp. On Orbital Tumors

Dr. Gowers, of London (through Dr. McHardy), Chronic Choked Disk.

Dr. Roosa. On the Relations of Blepharitis Ciliaris to Ametropia.

Dr. Loring. On the Halo Around the Macula.

On the Ciliary Muscle.

Dr. Gruening, New York. Tumors of the Optic Nerve.

Dr. Pooley, New York. Hemipopia.

Dr. Agnew, New York. On Asthenopia.

Dr. Jeffries, Boston. On Detachment of Posterior Synechia.

Dr. Dyér, of Pittsburg. On Gymnastic Exercises of the Ciliary Muscle in Asthenopia.

Dr. Heyl, of Philadelphia. On Coloboma of the Lens.

Dr. Nagel, Tübingen. The Metrical System in the Use of Spectacles.

Dr. Alt, New York. Sympathetic Neuro-retinitis.

Dr. Burnett, Tennessee. Trachoma, as Influenced by Race.

Dr. Kipp, New Jersey. Cysticercus under the Conjunctiva.

Dr. Keyser, Philadelphia. Bony Growth in the Site of the Crystalline Lens.

Dr. Thomson, Philadelphia. Astigmatism and Staphyloma Posticum.

Besides these, several other papers were read, simply by title, and referred to the Publication Committee.

A number of instruments were exhibited to the members of the Congress, either at its regular sessions or during its recesses. Among these were: The metrical ophthalmoscope of Dr. Landolt, of Paris, and the ophthalmoscopes of Loring & Knapp, each with the metrical system, as well as the old inch system, applied in the numbering of the glasses; Dr. Snellen's phakometer; Dr. Landolt's artificial eye for the correction of physiological calculation, etc.; Dr. Keyser's instrument for measuring the dis-

tance between the eyes; the lid forceps and scleral trephine of Dr. Robertson, of Edinburgh, etc.

The place of next meeting, in 1880, was not decided upon, owing to the slim attendance of European members. A committee was, however, appointed, consisting of Mr. Carter, Dr. Hanson and Dr. Becker, whose duty it shall be, after due consultation, to select a place of meeting, and appoint a committee of arrangements in the city selected.

During the Congress two receptions were given to the members—one by Dr. Agnew, and one by Dr. Knapp, both of which passed off with the utmost pleasantness. The banquet, which came off at Delmonico's, on the evening of the closing day of the Congress, was given by the members of the American Ophthalmological Society to the foreign members.

Among the distinguished personages present, outside the ranks of ophthalmology, was Mr. Walter, the publisher of the London *Times*.

The papers and subjects presented at the meetings were freely but courteously discussed, and every one came away convinced that this fifth meeting of the International Congress of Ophthalmology was in every particular a success.

SWAN M. BURNETT, M. D.

#### Salicylic Acid in Acute Rheumatism.

ED. MED. AND SURG. REPORTER:—

After reading many reports of cases rapidly cured by the use of salicylic acid, in your journal, and most of these reports, as is too apt to be the case, were based upon the treatment of a single case, I came to the conclusion that some of them would have got well had no treatment been employed; but, at the same time, I resolved to use salicylic acid in the first case of acute articular rheumatism I might be called to.

July 12th, 1876, at 10 P. M., I was summoned to see Mira S., aged 23; single; servant girl. Previous history—health had been good. I learned, on inquiry, that she had been ill two days, had taken no nourishment, drank occasionally a cup of tea. Slept but very little. Both feet and ankles badly swollen, the oedema extending above the knees, and the pain was very acute upon pressure and motion, both in the knees and ankle joints. Pulse 140; temperature 105°; respiration 32; profuse perspiration; tongue coated; urine scanty; countenance anxious. I ordered 15 grains of salicylic acid every two hours, until 150 grains were taken. To have as diet, arrowroot, mutton-broth, fish, milk and lime-water. Pieces of ice to quench thirst.

13th, at 8 A. M., pulse 120; temperature 104°; respiration 26. At 8 P. M., pulse 100; temperature 106°; respiration 21. The oedema of the limbs was reduced one-fourth, and the acuteness had nearly all passed away. She had taken all the powders except one. Complained of some nausea and deafness. I ordered her to stop taking the medicine.

14th, at 8 A. M., pulse 89; temperature 100°; respiration 18. Had slept most of the night. At 9 P. M., pulse 82; temperature 99°; respiration 18. I ordered the remaining powder to be divided, one-half to be taken at night, the other in the morning.

15th, at 9 A. M., the pulse, temperature and respiration nearly normal. The pain had all subsided, and the swelling was nearly all gone. She was sitting up, and she said she felt well. I saw her three days later; she said she had gone to work. I saw her again the first of this month; she reported that she had been well ever since.

I have given symptoms, so that you may judge as to the therapeutic value of salicylic acid. In acute rheumatism I do not think more complete cinchonism could be practiced with the same amount of quinine; but I do not think that this proves salicylic acid to be a specific. The disease, where no treatment is employed, ends from self-limitation; but the minimum and maximum of duration are widely apart, from twelve to sixty days. This case terminated in three days. The patient was a good one, and I tried the remedy thoroughly. Used no local applications. I am longing for some more cases to try the acid, and if, after treating several cases, I find that it proves as efficacious, or nearly so, as it has in this case, I will be as ready to add my plaudits of praise as highly in its favor as some articles I have read in your journal reported by other physicians. I must say that no remedy has proved satisfactory with me in the treatment of all cases of acute rheumatism.

F. H. CRANDALL, M. D.

Medina, N. Y.

## NEWS AND MISCELLANY.

### Business Management.

Twenty-two physicians of Meadville, Pa., and vicinity, have adopted what appears to us a sensible and proper expedient to prevent unworthy patients cheating the doctor. Their action is shown in the following resolutions:—

*Resolved*, by the physicians of Meadville, that we, and each of us, will, within thirty days from date, furnish our accountant, ———, Esq., a complete list of our delinquents belonging to the class referred to.

*Resolved*, That Mr. ——— is hereby authorized to notify each of said delinquents, by printed circular, of such delinquency, the amount of arrears, and to whom due, with the information that if these arrears are not paid or satisfactorily arranged within thirty days from date of such notice, their names will appear on the general printed black list.

*Resolved*, That the undersigned hereby pledge themselves not to give prescriptions, medical advice or attention to those who permit their names to appear on said black list, unless the payment of the fee shall be secured before such services are rendered.

*Resolved*, That nothing in the above shall apply to those who are not able to pay, or interfere in any manner with that work of charity which every humane and honorable medical man delights to perform.

### Items.

—There were 21 interments at Savannah September 21st, 16 being yellow fever cases. Norfolk has sent \$1000 to Savannah, and also a corps of nurses for the sick.

—Yellow fever has appeared at Charleston, a few cases being reported, but no deaths.

—Stringent quarantine regulations have been established at Augusta, Ga., against passengers from Charleston, S. C.

—The Baltimore health authorities, fearing the spread of "typho-malarial disease," prevailing there, have isolated totally the district in which the disease is located, and ordered every precaution in their power to prevent infection.

—A strange disease, causing much alarm, has broken out among the cattle in Wayne county, Pa. An insect like a tick bores deeply into the animal's flesh, causing inflammation, and, in a few hours, death. Thirty deaths have occurred from it at Hawley's, in that county.

### MARRIAGES.

AUSTIN-DAVIS.—In Philadelphia, on the 19th of August, by the Rev. E. I. D. Pepper, Dr. A. A. Austin, of U. S. Navy, and Nettie V. Davis, of Philadelphia.

DOTTERER-SHELLY.—On the 20th of June, 1876, at the First Reformed Church, Race street, below 4th, by Rev. D. Vanhorn, Mr. Harry Dotterer and Miss Rebecca Shelly, daughter of A. F. Shelly, M.D., of Philadelphia.

GRAY-COLTON.—At the Church of St. George the Martyr, London, England, by Rev. Nathan Beck, on the 31st of August, Edward Gray, M.D., of California, and Miss Gertrude Colton, eldest daughter of the late Rev. Henry M. Colton, of Middletown, Conn.

HENLEN-CAMPBELL.—On Sept. 14th, 1876, at the residence of the bride's father, by the Rev. W. T. Dickson, B. A. Henlen, M.D., and Miss Thalia A. Campbell, both of North Hope, Pa.

JACKSON-CROSS.—August 24th, 1876, by Rev. J. C. McElree, at the residence of the bride's mother, Homer Jackson, M.D., and Miss Alice E. Cross, both of Clintonville, Pa.

FARRISH-DE LA MOTTA.—On the 6th Aug., at the residence of the bride's mother, by the Rev. W. H. Furness, D.D., Dr. William H. Farrish and Isabel N. De La Motta.

RICHARDSON-KNIGHT.—July 4th, 1876, at the residence of the bride's parents, New Castle, Coshoc-ton Co., O., Dr. Joshua Richardson, of Fort Madison, Iowa, and Miss Maria J. Knight.

TREGO-HOPKINS.—September 5th, Spruce street, by the Rev. Mr. Wilbur F. Paddock, Edwin H. Trego, M.D., of Philadelphia, and Effie S. Hopkins, of Harford County, Md.

### DEATHS.

PHILLIPS.—Of paralysis. Wednesday, August 23, at 12.25 P.M., Dr. Geo. W. Phillips, in his 74th year.

SCOTT.—On the 15th Aug., at Coatesville, Pa., James L. Scott, M.D., aged 37.

ST. JOHN.—At New-Canaan, Conn., on Saturday, Sept. 9, Prof. Samuel St. John, M.D., in the 64th year of his age.